REMARKS

As for page 2, paragraphs 2 and 3, of the Office Action, Applicant respectfully requests the Examiner to reconsider and withdraw the objections to the drawings in view of the concurrently filed Proposed Drawing Correction, in which it is proposed to label Figs. 1 and 2 as "Prior Art", and to amend Figs. 1, 2, 4 and 5 to contain the "word labels" required by the Examiner.

Applicant respectfully requests the Examiner to reconsider and withdraw the rejection under 35 U.S.C. § 112, second paragraph, as presented on page 3, paragraph 5 of the Office Action, in view of the above claim amendments. With respect to the word "ribbon", Applicant uses this word in its dictionary sense, i.e., a "strip"; however, if the Examiner should insist, Applicant will replace the word "ribbon" with the word "strip".

Applicant respectfully traverses the rejection of claims 1-12 under 35 U.S.C. § 112, second paragraph, "as being incomplete for omitting essential elements". Applicant respectfully traverses the Examiner's requirement that "end reflecting elements" must be recited in claims 1 and 8 as essential elements for the claimed "buried ribbon laser", as, Applicant respectfully submits, there is nothing "indefinite" about the language of claims 1 and 8. The terms "buried ribbon semiconductor laser structure", and "buried ribbon laser" define structures that are well-known in the art and would be known to a person of ordinary skill in the art. Furthermore, the claimed invention is directed to a "laser" structure. "LASER" literally means "Light Amplification by Stimulated Emission of Radiation". A "laser" structure placed in a resonant

cavity becomes a laser "oscillator" (or laser source). Even if "laser" is often incorrectly used and understood as a laser oscillator, the claimed amplifying structure, as such, can be used as a simple optical amplifier (without reflectors, and even with anti-reflecting coatings at both ends) or in laser oscillator structures (with additional reflecting means). In this regard, Applicant respectfully refers the Examiner to the cited Mersali, Mori and Kakimoto references which also recite semiconductor laser structures without reciting such elements as "end reflecting elements (e.g., mirrors)".

Applicant also respectfully traverses the rejection of claims 1-12 under 35 U.S.C. § 112, second paragraph, "as being incomplete" for allegedly omitting required "structural relationships" between the claim layers. Applicant respectfully submits that the above claim amendments overcome this rejection, and that claims 1-12 are quite "complete". In this regard, Applicant respectfully submits to the Examiner that, while the scope of the involved claims may be **broad**, the language of the claims is quite **definite** and requires the Examiner to find prior art relevant to the **claimed subject matter**. In any event, it is respectfully submitted that claims 1-12 are now clear as to the required order of layers, but, if the Examiner disagrees, Applicant respectfully requests the Examiner to **call the undersigned attorney** to discuss the matter.

Claims 1, 2 and 4-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Mersali '768 in view of Mori '479.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Mersali '768 in view of Mori '479 and further in view of Kakimoto '741.

Claims 8-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Mersali '768 in view of Kakimoto '741.

Applicant respectfully traverses all of these rejections.

First, Applicant's invention is directed to a buried ribbon semiconductor laser and a method of making same. The prior art is illustrated in Figs. 1 and 2, and different embodiments of the present invention are illustrated in Figs. 4 and 5.

Common primary features of the embodiments are the burying of the laser active layer 4 in an n-doped burying/confinement layer 19, and the forming of a thin n-doped layer 17 between the bottom of the laser active layer 4 and the top of a p-doped confinement layer 16. The thin layer 17 prevents the migration of p-dopant (zinc) from the p-doped confinement layer 16 to the laser active layer 4.

The deleterious effects of zinc migration are recognized in the prior art.

Mersali '768 is used as the **primary reference** in each of the three rejections under 35 U.S.C. § 103(a).

Applicant respectfully submits that the Examiner has misinterpreted Mersali's disclosure, whereby the Examiner has not made out a *prima facie* case of obviousness with respect to any of the rejections under 35 U.S.C. § 103(a).

More specifically, and as described in column 4, lines 39-40 of Mersali, the layer 12 is **not** p-doped; rather, it is **non-doped**. Moreover, **p-doping** is clearly **excluded** as described in column 3, lines 60-65, in that the n-doped layer 13 of Mersali is provided precisely for the purpose of preventing p-dopants of layer 16 from diffusing into the layer 12. (Thus, while Mersali's disclosure may bear some resemblance to Applicant's Fig. 2 embodiment in that Mersali's active layer also is non-doped, Mersali's structure is quite different from Applicant's claimed structure.) In any event, an important difference is that in Mersali's structure the active layer 14 is **not completely surrounded by n-doped materials, i.e., is not buried "in an n-doped burying layer" as required by both of Applicant's independent claims 1 and 8; in other words, the upper and vertical faces of Mersali's active layer 14 are buried in p-doped material 16.**

Thus, in view of this above-noted deficiency in Mersali's disclosure with respect to Applicant's claims 1-12 and new claim 13, the three rejections based on unpatentability (obviousness) under 35 U.S.C. § 103(a) are untenable.

In the rejections of claims 1-7 under 35 U.S.C. § 103(a), the Examiner relies on Mori '479 as a **secondary reference**. Again, Applicant also must respectfully submit that the Examiner has misinterpreted Mori's disclosure in that Mori's active layer 3 is **not completely surrounded by, i.e., not buried in, only in an n-doped layer**. Rather, Mori's n-doped layer 10 only partially covers the lateral (vertical) faces of the active layer. In addition, the upper face of the active layer is not covered by n-doped material, as the cladding layers 5 and 6 are p-doped,

and the SCH layer 4 is described as being undoped (see column 9, line 26). Thus, the basic structure of Mori is quite similar to that of Mersali's: an upper face of the active layer is **not in contact with n-doped material** and the lateral faces are at least partially **not in contact with n-doped material**.

Thus, Applicant respectfully submits that, because of these deficiencies in both Mersali and Mori, the combined teachings of Mersali and Mori are **incapable** of rendering obvious the subject matter of claims 1, 2 and 4-7; furthermore, even if the Examiner's proposed combination of Mersali and Mori were, for some reason, made, clearly there would not be produced the subject matter of any of claims 1, 2 and 4-7. That is, there would not be produced Applicant's claimed structure in which the **active layer** is completely surrounded by (i.e., is buried in) **only n-doped material**.

Thus, the rejection of dependent claim 3 (3/1) also must be withdrawn because, even if Kakimoto's thin protective layer were combined with Mersali's and Mori's structures, there would not be (and could not be) produced the structure of claim 3 (3/1) or a structure which would have rendered claim 3 obvious.

Therefore, Applicant respectfully requests the Examiner carefully to reconsider and to withdraw the rejection of claim 3 under 35 U.S.C. § 103(a).

For similar reasons, Applicant respectfully submits that the rejection of "laser" claims 8-12 (claim 9 has been canceled and its limitation incorporated in independent claim 8) also should be withdrawn because of the above-noted deficiency in Mersalis' disclosure relative to the

subject matter of these claims. That is, even if Kakimoto's "n-doped layer above the ribbon" were combined with Mersali's structure, there would not (and could not) be produced the subject matter of any of the pending laser claims 8 and 10-12 (claim 9 having been canceled). Thus, the pending claims 8 and 10-12 have the same primary and novel features as claim 1, i.e., the top, bottom and lateral faces of the "active layer" are respectively adjacent **only n-doped layers**.

Thus, Applicant respectfully submits that the Examiner has also failed to make out a *prima facie* case of obviousness of the pending claims 8 and 10-12.

In summary, then, Applicant respectfully requests the Examiner to reconsider and withdraw the objections to the drawings, the rejections under 35 U.S.C. § 112, second paragraph, and the rejections under 35 U.S.C. § 103(a), and to find the application to be in condition for allowance with all of pending claims 1-8, 10-12 and new dependent "method" claim 13 (13/1) which adds a further limitation to the parent "method" claim 1. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the examiner is respectfully requested to **call the undersigned attorney** to discuss any unresolved issued and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this application, and any required fee for such extension is to be charged to Deposit Account No. 19-4880. The Commissioner is also authorized to charge any additional fees

under 37 C.F.R. § 1.16 and/or § 1.17 necessary to keep this application pending in the Patent and Trademark Office or credit any overpayment to said Deposit Account No. 19-4880.

Respectfully submitted,

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